Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Date: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Pd: \_\_\_\_\_

**Chapter 4 Atoms: Note Guide**

Matter is anything that has \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ and takes up \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

* \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ in the physical world that surrounds us is composed of \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

**4 States of Matter**: Molecular Illustration Molecular Illustration

1. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ 3. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
2. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ 4. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Element**: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

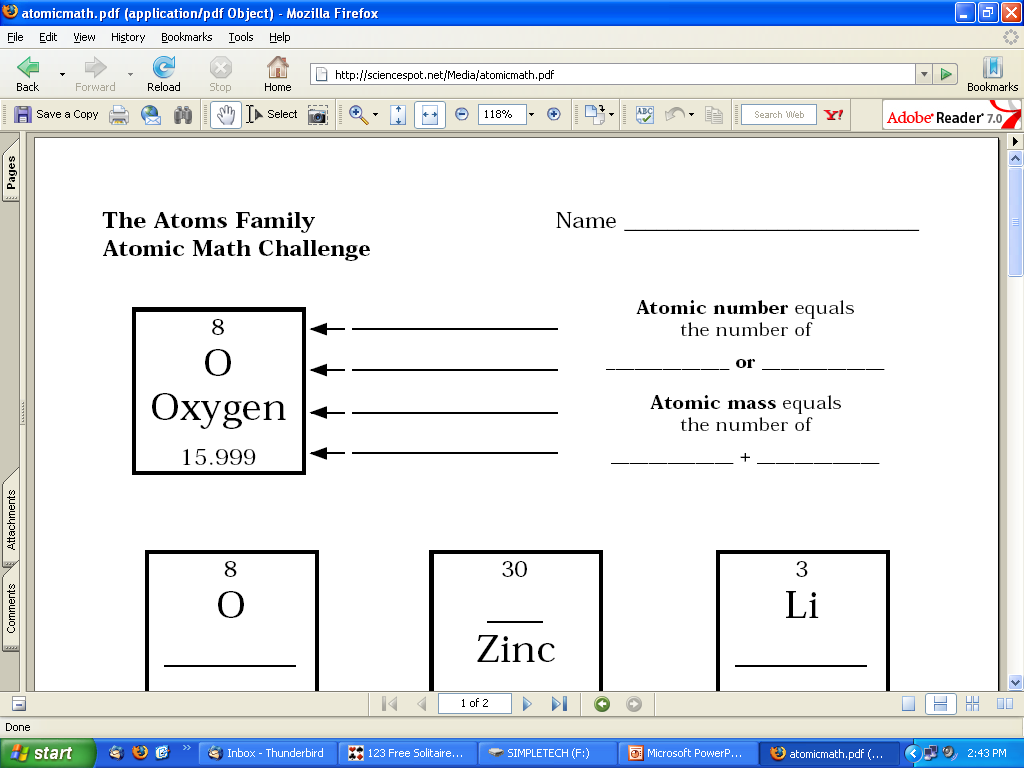
* All \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ is made of \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

The smallest portion of an element that \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ is called an \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

**Atoms** composed of \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ particles:

* + Proton: carries a \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ charge (\_\_\_\_\_\_\_\_\_\_\_\_\_)
  + Neutron: carries a \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ charge (\_\_\_\_\_\_\_\_\_\_\_\_)
  + Electron: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ particle (\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_)
* Overall, atoms are neutral because \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

Let’s Put It All Together:

**Periodic Table**

* + - * Atomic Number= # of \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ OR \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
      * Atomic Mass= # of \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ **+** \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
        + the mass of the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ is ignored

because it’s so small.

**Isotopes**: are NORMALLY, NATURALLY occurring forms of some elements.

* \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ that have different number of \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ but same number of \_\_\_\_\_\_\_\_\_\_\_\_\_\_
* This change in neutrons does NOT affect the chemical characteristics BUT the \_\_\_\_\_\_\_\_\_\_\_\_\_\_ of the atom is affected. (Remember: Atomic Mass = Protons **+** Neutrons)

The nucleus can become unstable and can break down 🡪 atom emits energy in the form of

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

**Energy levels**:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

* 1st level holds \_\_\_\_\_, 2nd holds \_\_\_\_\_\_, 3rd holds \_\_\_\_\_\_\_, 4th holds \_\_\_\_\_\_\_ electrons
* Valence electrons (valence e-) are found in the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ energy levels and determine chemical \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ specifically how they behave with other elements.

The **periodic table** organizes similar elements into rows called periods and columns called groups or families. As you move to the right along a row valence e- \_\_\_\_\_\_\_\_\_\_ and elements become more \_\_\_\_\_\_\_\_\_\_. Elements with \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ number of valence electrons for groups in columns.